



PRECAST CLADDING FOR TODAY & TOMORROW

Presented by Tom Kelley, P.E.

President of Gage Brothers

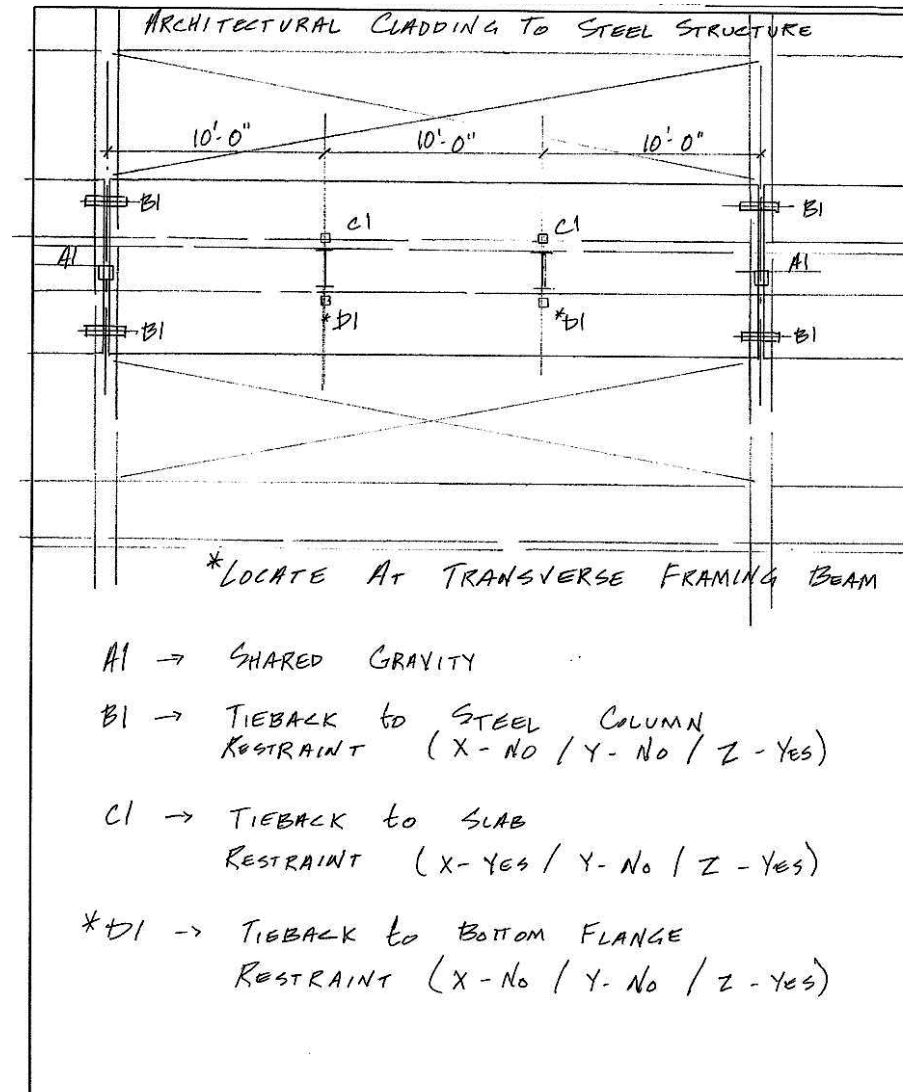
Presentation Overview

- Office Cladding on a Steel Structure
- Ramp Cladding on Concrete Structure
- Total Precast Systems
- New Innovations: ARCIS

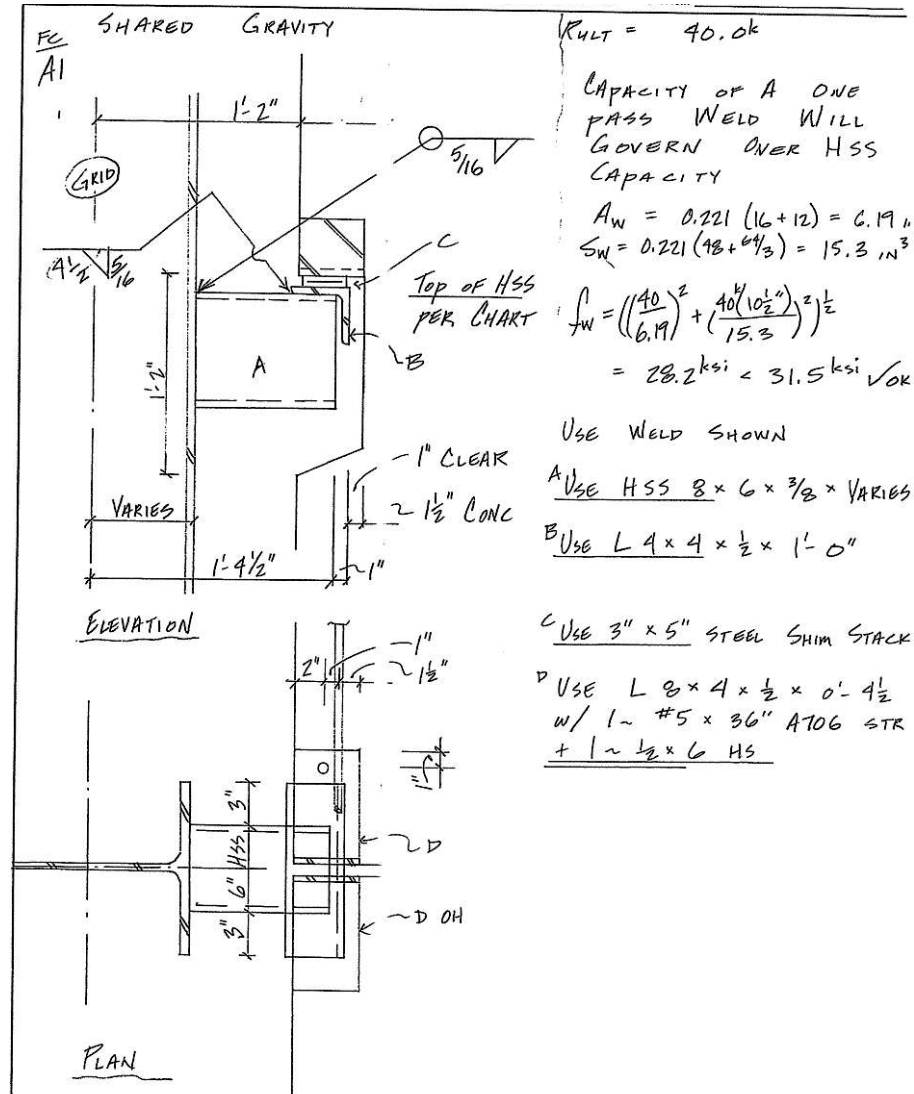
Sanford Fargo Medical Center



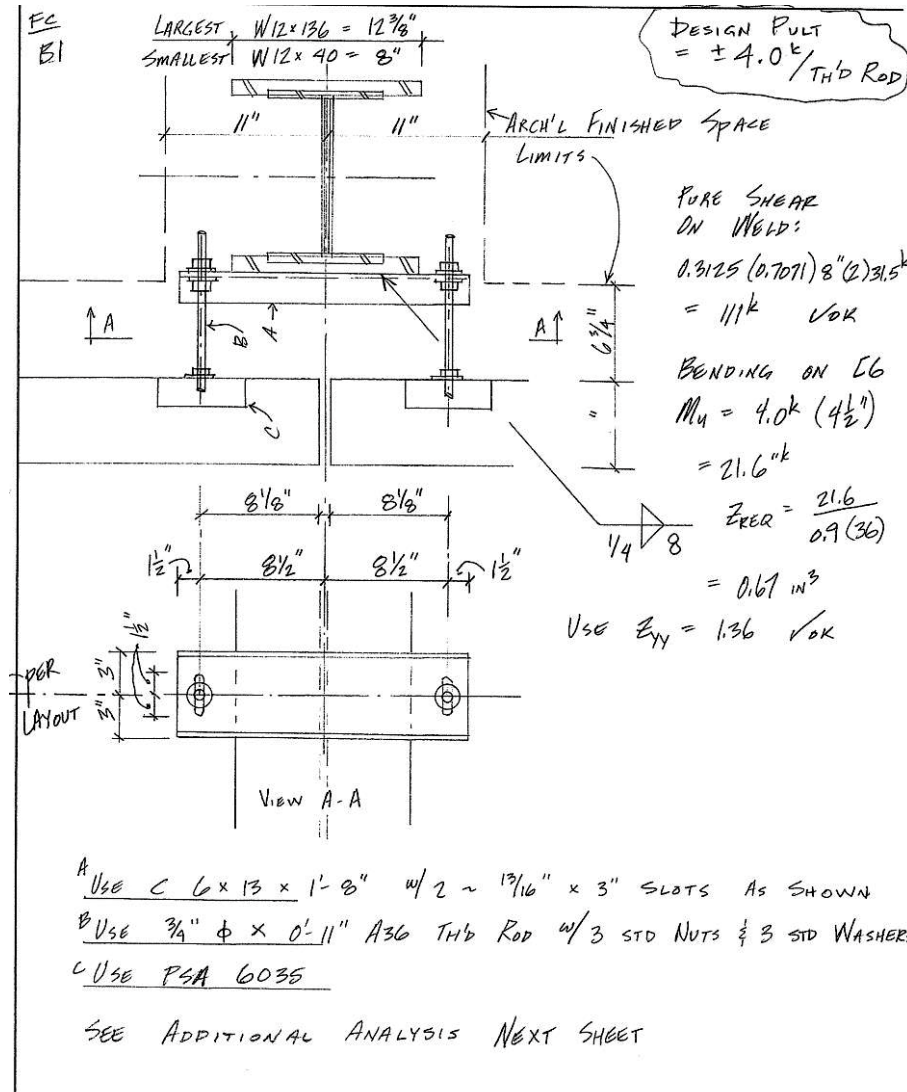
Connections



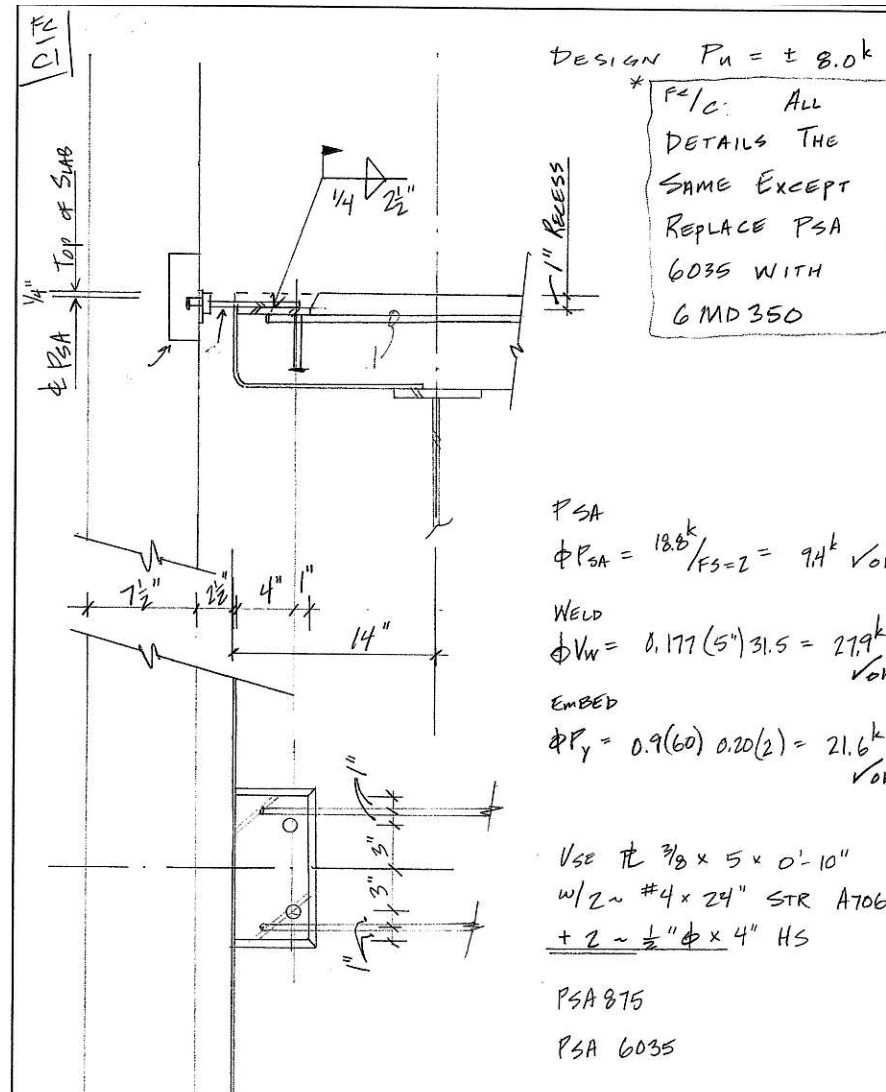
Gravity Connection



Column/Tieback Connection



Slab/Tieback Connection



Midspan Tieback Connection

Fe/D1

DESIGN LOAD = $\pm 7.5^k$

CHECK WELD

$$A_w = 0.177(4)2 = 1.42 \text{ in}^2$$

$$S_w = 0.177(4)4 = 2.83 \text{ in}^3$$

$$f_w = \left(\left(\frac{7.5}{1.42} \right)^2 + \left(\frac{7.5^k(4)}{2.83} \right)^2 \right)^{\frac{1}{2}}$$

$$= 11.8 \text{ ksi} < 31.5 \text{ ksi}$$

CHECK ANGLE

$$t_{req} = \left[\frac{4(7.5^k)(4" - k=1")}{0.9(36)12"} \right]^{\frac{1}{2}} = 0.48"$$

A USE L 6 x 4 x $\frac{1}{2}$ x 1'-0"
w/ 1 $\frac{3}{16}$ " x 3" HORIZ SLOT

COMP CAPACITY OF THRB ROD

USE $L_u = 2"$

USE $A = 0.44 \text{ in}^2$ $r = 0.19"$

$$\lambda_c = \frac{1.0(2)}{\pi(0.19)} \sqrt{\frac{36}{29000}} = 0.72$$

$$\phi_{C_n} = 0.85(0.658)^{0.7} 36(0.44) = 14.3^k \checkmark$$

$$\phi_{T_n} = 0.9(36) \frac{\pi D^2}{4} = 14.3^k \checkmark$$

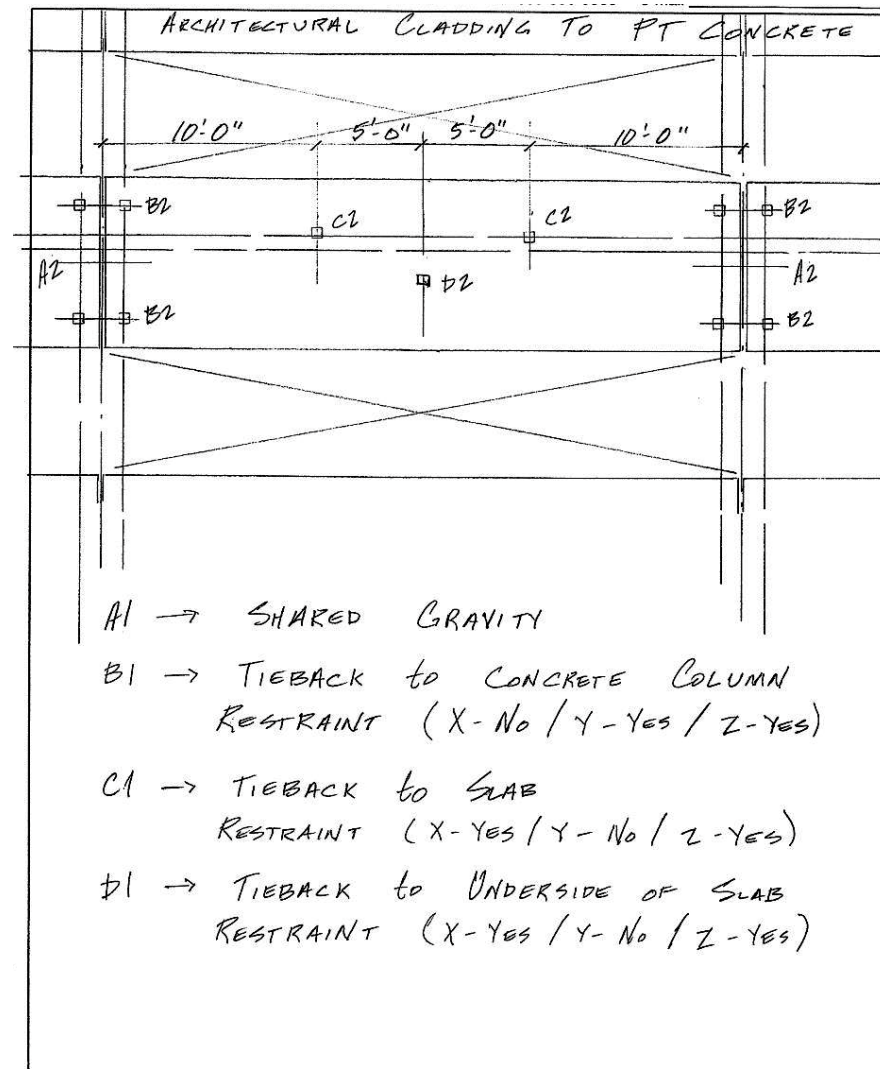
B USE $\frac{3}{4}" \phi$ x 1'-4" A36 TH'B ROD
w/ 3 STD NUTS + 3 STD WASHERS

C USE PSA 6035

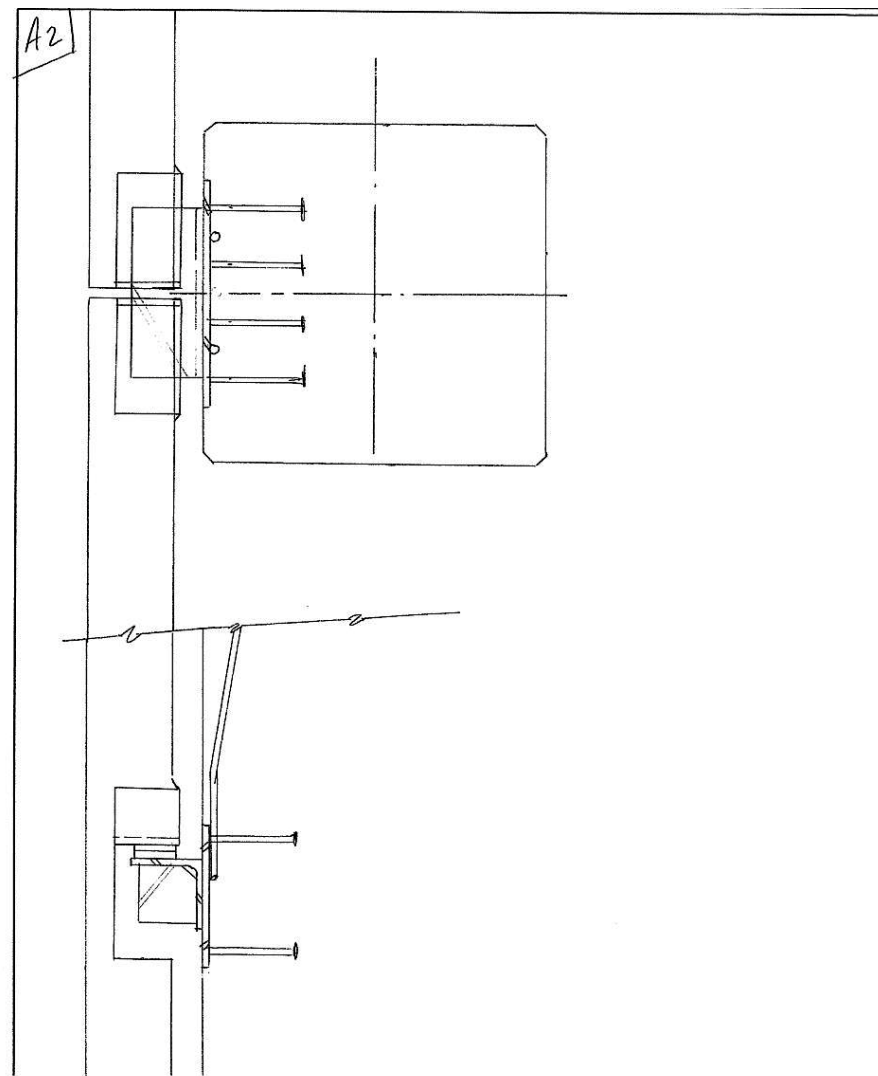
$$\phi_{T_{PSA}} = 18.8^k / F_s = 2 = 9.4^k$$

VIEW A-A

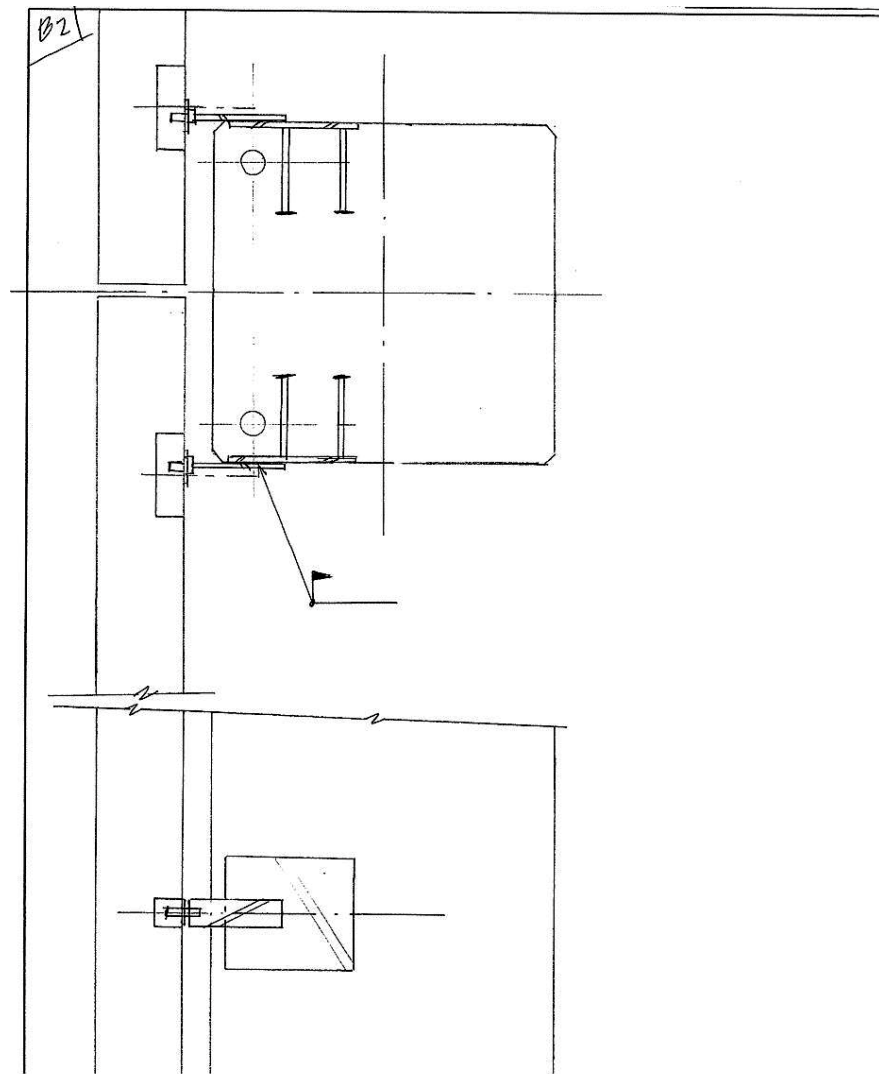
Connections



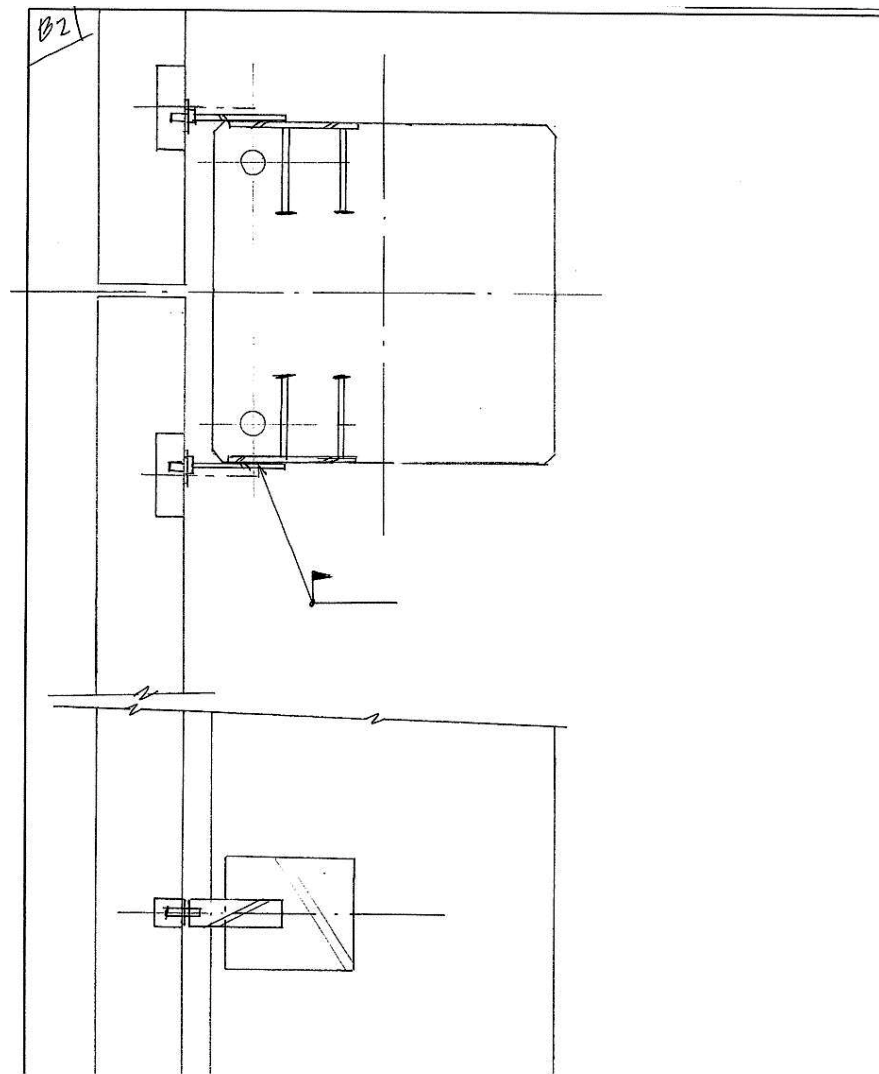
Gravity Connection



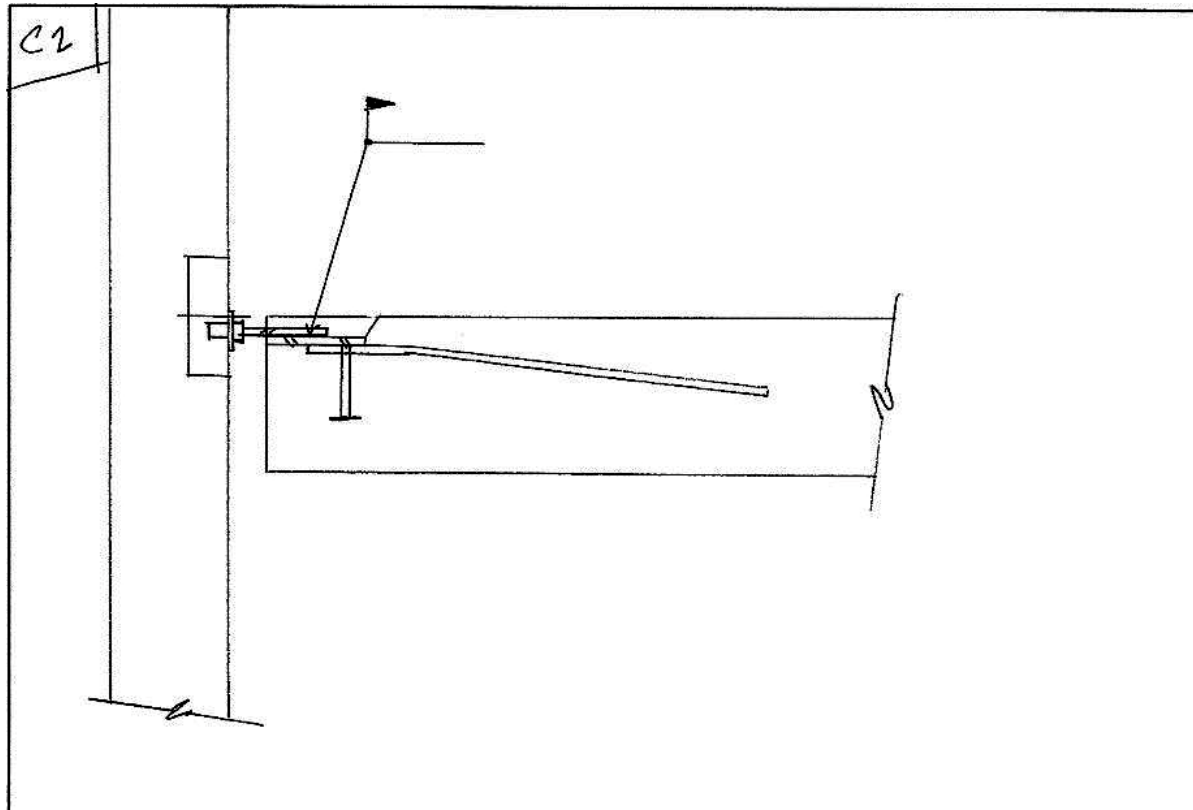
Column/Tieback Connection



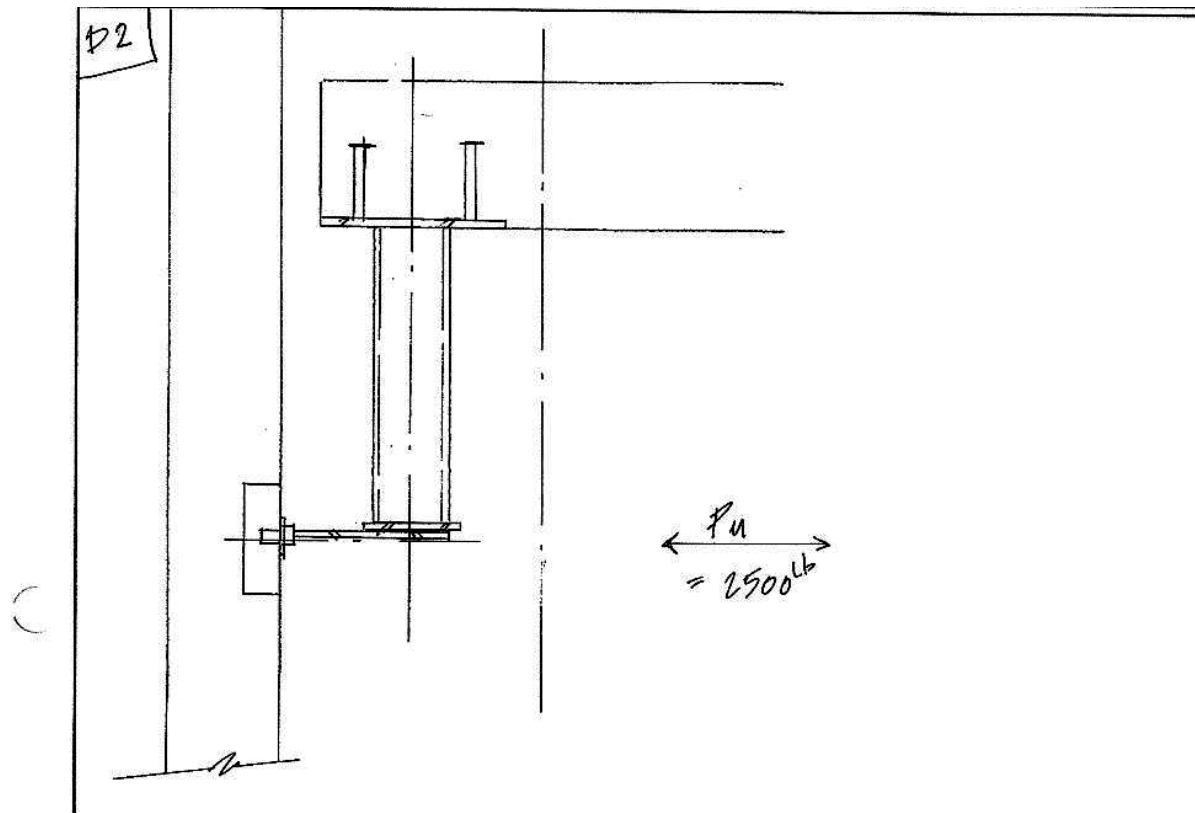
Column/Tieback Connection



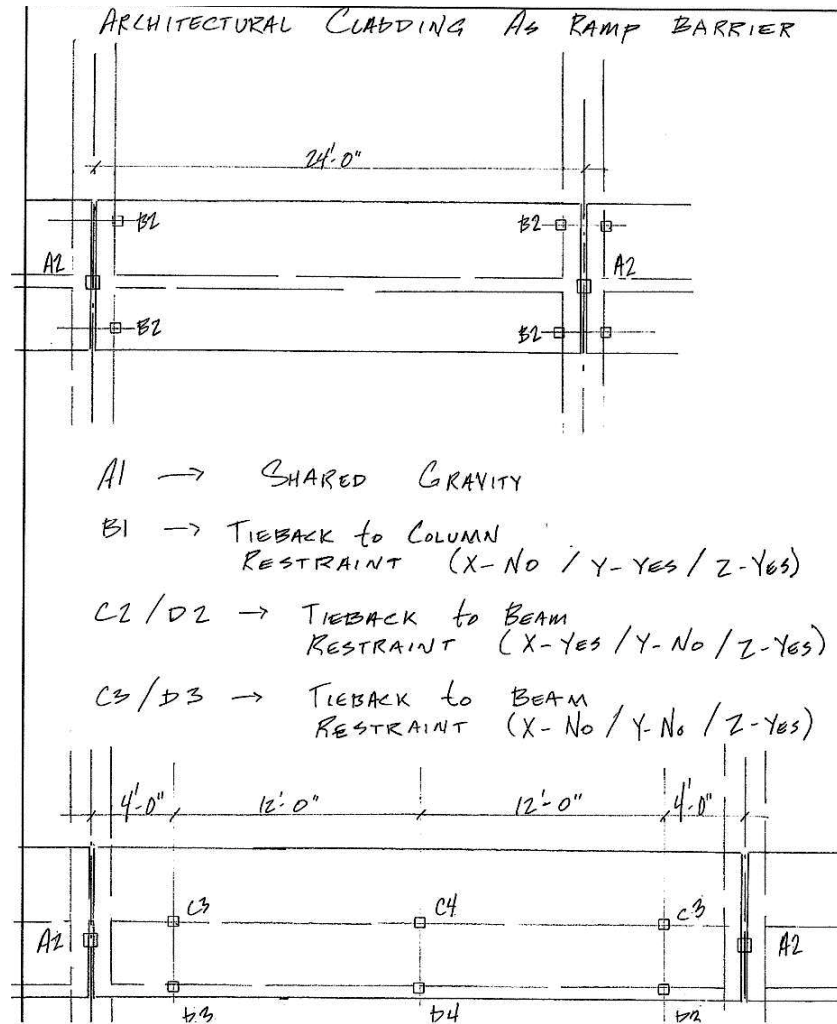
Tieback Connection



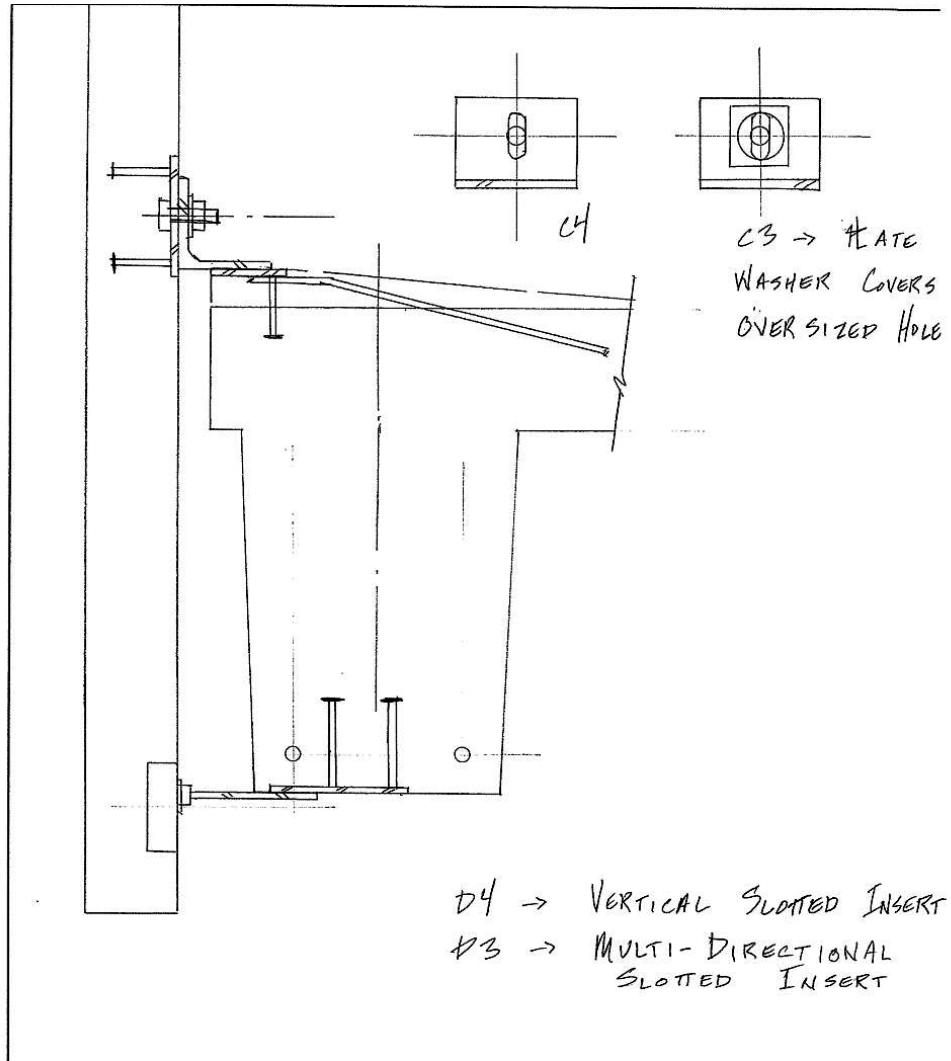
Tieback Connection



Connections



Tieback Connections



Target Northern Campus



National Marrow Donor Program



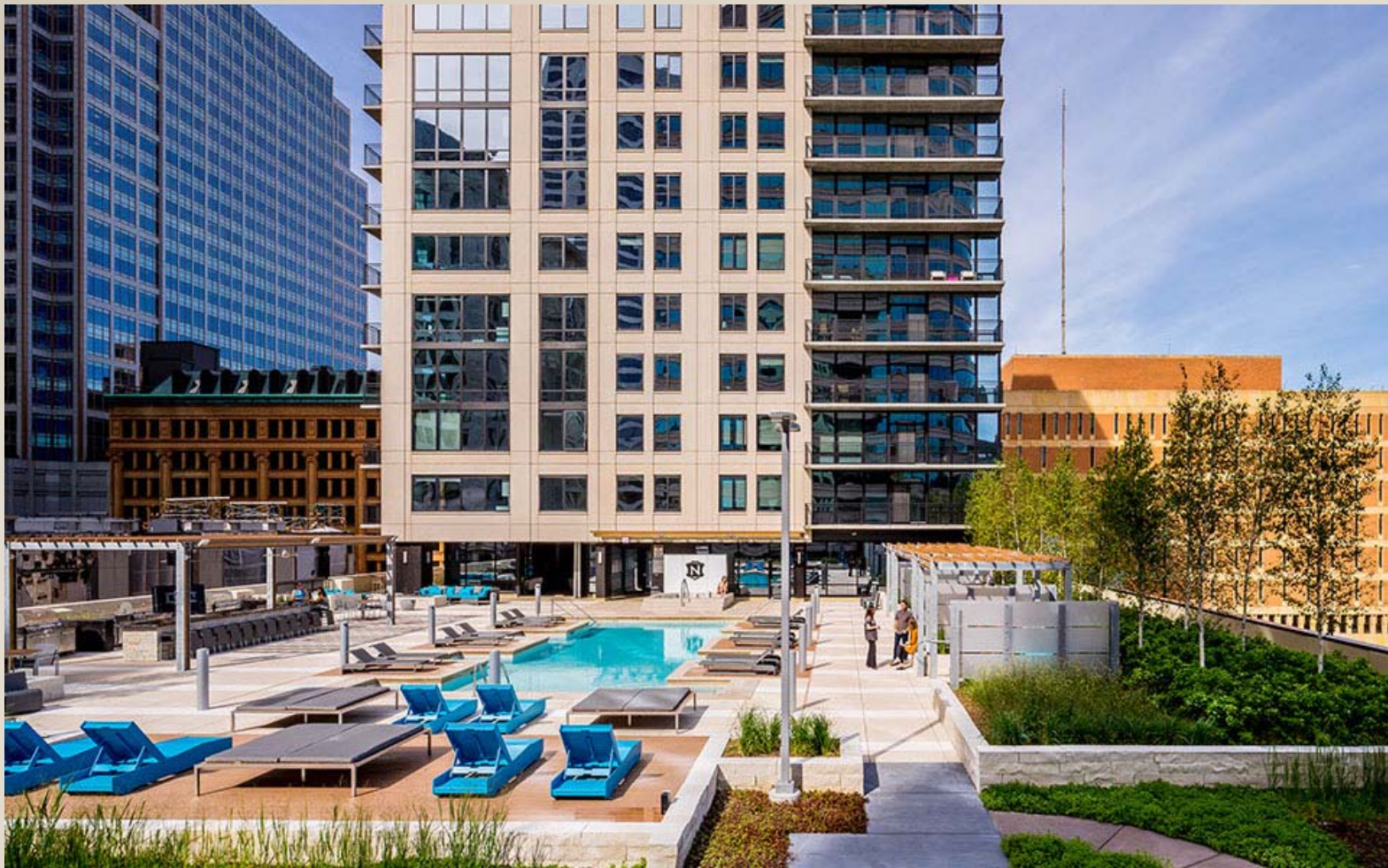
UnitedHealth Group



Medtronic Operational HQ



The Nic on 5th



Kenrick Avenue Park & Ride



17th Avenue Residence Hall



Wells Fargo Downtown East



Maurices Corporate HQ



Nordstrom Ridgedale



Rocker Square I



Rocker Square II



Rocker Square I



Rocker Square I



Rocker Square II



Rocker Square II



Rocker Square II



Rocker Square I



Total Project Cost

Tech Tower No. 1 **\$127.00/sq. ft.**

Tech Tower No. 2 **\$131.00/sq. ft.**



The next great precast innovation

The logo for ARCIS features the word "ARCIS" in a large, bold, black, sans-serif font. Above the letters, there is a blue horizontal bar with a white, upward-pointing arrowhead shape in the center, suggesting a precast concrete joint or a specific architectural detail.

ARCIS

The next great precast innovation

The secret: stainless steel prestressing

ARCIS panels use non-corrosive high strength aerospace grade stainless steel prestressing – pretensioned cable strand —placed longitudinally and transversely in the panel face to impart strength, crack control and durability while allowing concrete cover to be minimized. The stainless steel tendons are placed slightly off the midplane of the panel to resist curling, warping and cracking. Panels can be produced in a variety of sizes from as small as 2' x 4' up to 8' x 13' and 8' x 15' in some markets.



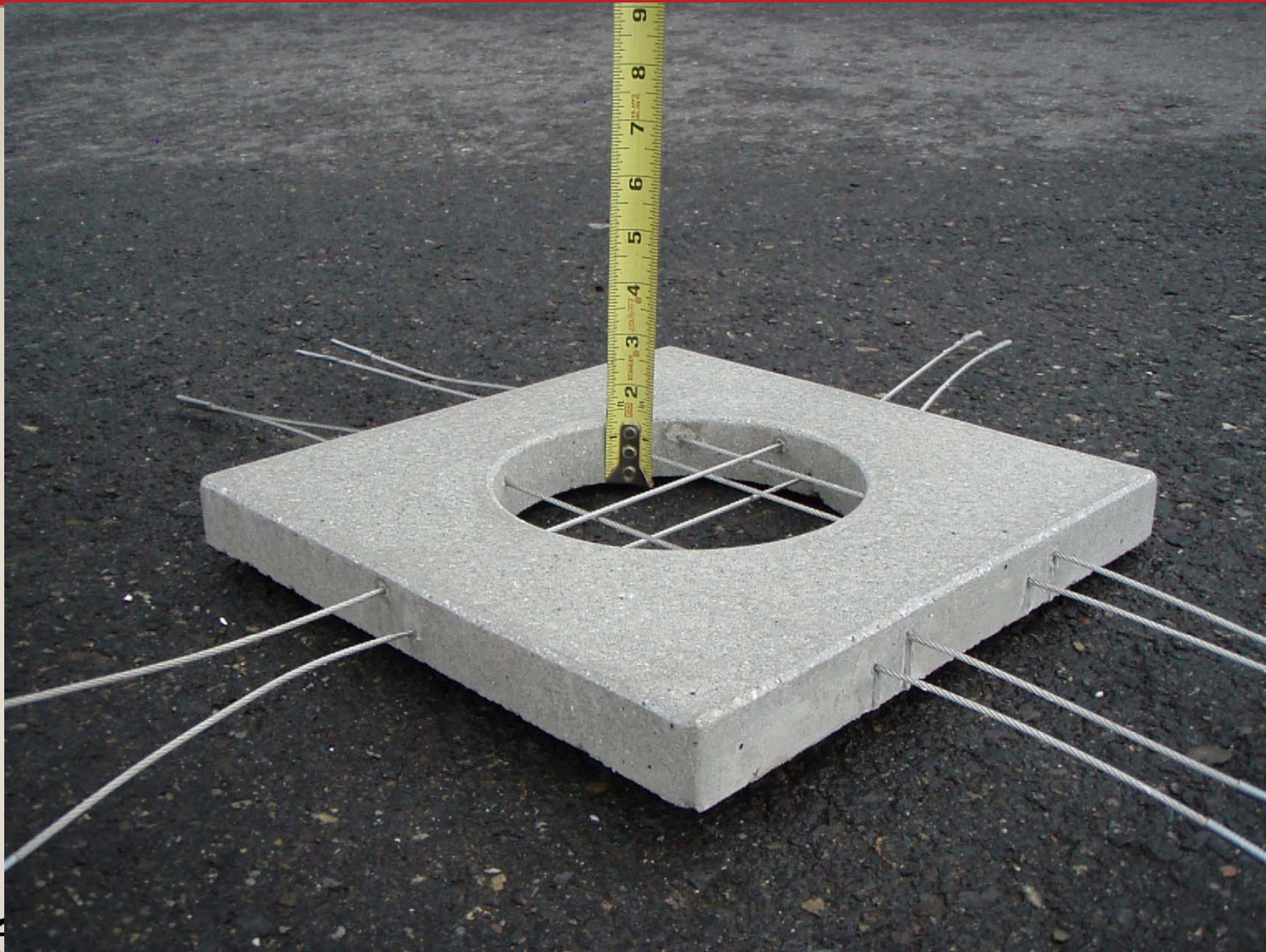
The next great precast innovation

The secret: stainless steel prestressing

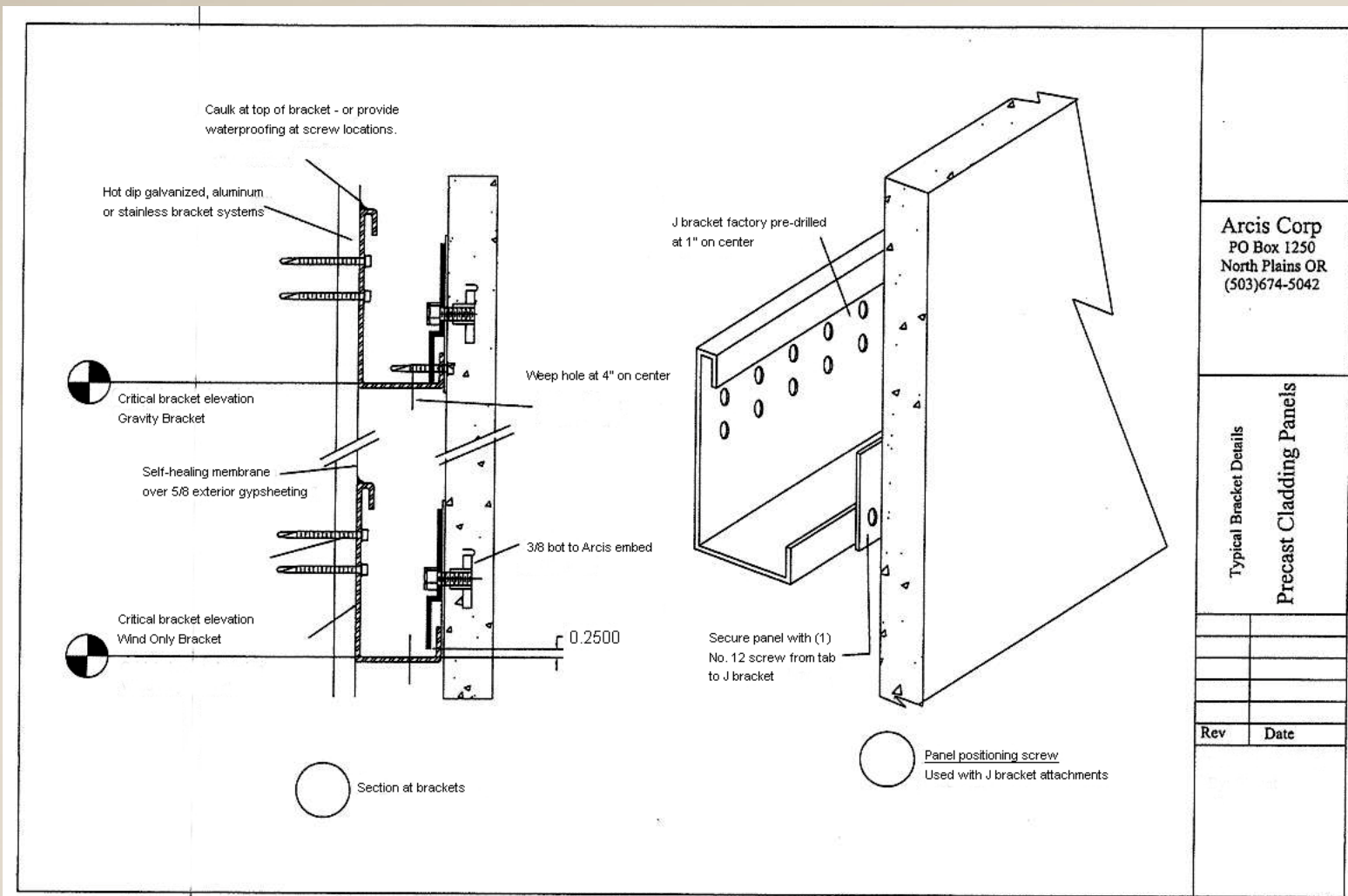
Panel connections are made using embedded stainless steel anchors that are attached directly to the prestressing strand during manufacturing set-up. The connection to the building structure is accomplished with screw fasteners. No welding is required, which dramatically speeds up and simplifies fieldwork. Panel size is governed by the attachment system, the panel thickness and the installer's method of handling the panels. The panels span vertically between J clips.



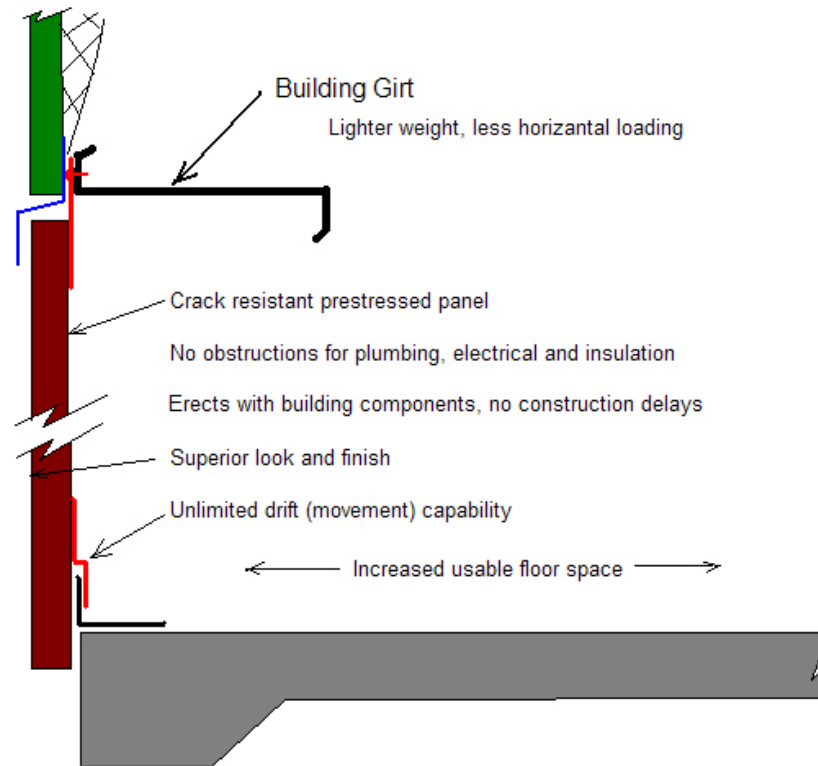
The next great precast innovation



The next great precast innovation



The next great precast innovation



Section at Arcis Panel Skirt Wall

The next great precast innovation



The next great precast innovation



The next great precast innovation

With final installed weights from 9.4 psf to 25 psf (46 kg/m² to 122 kg/m²), ARCIS panels provide a lightweight cladding for a true rainscreen system with the durability and aesthetic benefits of precast concrete.



Thank you for your time today!

